

**What is claimed is:**

1. A method for monitoring resources of a data processing network on behalf of  
5 consumer entities within the network, comprising the steps of:  
determining the monitoring requirements of a consumer entity;  
comparing the monitoring requirements of the consumer entity with the  
monitoring capabilities of a plurality of monitoring entities to identify at least one  
monitoring entity having monitoring capabilities matching the monitoring requirements of  
10 the consumer entity; and  
in response to identifying at least one monitoring entity having monitoring  
capabilities matching the monitoring requirements of the consumer entity, selecting at  
least one of the identified monitoring entities and binding the consumer entity to the  
selected at least one monitoring entity.  
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2. The method of claim 1, wherein binding the consumer entity to the selected at  
least one monitoring entity comprises establishing a connection between the consumer  
entity and the selected at least one monitoring entity, sending a description of the  
consumer entity's monitoring requirements to the selected at least one monitoring entity,  
20 and configuring the selected at least one monitoring entity to perform the required  
monitoring.
3. The method of claim 1 wherein the step of comparing requirements with  
capabilities comprises comparing requirements with a set of currently active monitoring  
25 capabilities of each of the plurality of monitoring entities.
4. The method of claim 1 wherein the step of comparing requirements with  
capabilities comprises comparing required monitoring metrics with monitoring metric  
capabilities of each of the plurality of monitoring entities.  
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5. The method of claim 1 wherein the step of comparing requirements with capabilities comprises comparing a required monitoring period with monitoring period capabilities of each of the plurality of monitoring entities.

5 6. The method of claim 1 wherein the step of comparing requirements with capabilities comprises comparing a required monitoring granularity with monitoring granularity capabilities of each of the plurality of monitoring entities.

7. The method of claim 1 wherein the step of comparing requirements with  
10 capabilities comprises comparing a required data format for monitoring data with the output data format capabilities of each of the plurality of monitoring entities.

8. The method of claim 1 further comprising the steps of:  
the consumer entity sending a description of its monitoring requirements to a  
15 repository;  
the plurality of monitoring entities sending descriptions of their respective monitoring capabilities to the repository; and  
storing the descriptions of requirements and capabilities in the repository;  
wherein the comparing step comprises comparing the descriptions of  
20 requirements and capabilities stored in the repository.

9. The method of claim 8, further comprising the step of creating a binding document describing the monitoring performed for the consumer entity by the selected at least one monitoring entity, and sending the binding document to the repository.

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10. The method of claim 8 wherein the descriptions of monitoring entities' capabilities comprise a list of the metrics currently being monitored for each of a set of monitored resources.

30 11. The method of claim 10 wherein the descriptions of monitoring entities' capabilities comprise currently active monitoring parameters for each monitoring metric.

12. The method of claim 10 wherein the descriptions of monitoring entities' capabilities comprise the output data format for each monitoring metric.

13. The method of claim 1, further comprising the step of:

5 in response to a failure to identify at least one monitoring entity having monitoring capabilities matching all monitoring requirements of the consumer entity, initiating a negotiation between the consumer entity and a plurality of monitoring entities to select a best match between the monitoring requirements of the consumer entity and the monitoring capabilities of the plurality of monitoring entities.

10 14. The method of claim 1, further comprising the step of:

using a common sub-expression finder module to identify a monitoring entity having at least one sub-expression in common with the consumer entity, and selecting the monitoring entity having the at least one common sub-expression.

15 15. A method for monitoring resources of a data processing network on behalf of consumer entities within the network, comprising the steps of:

determining the monitoring requirements of a consumer entity;

10 comparing the monitoring requirements of the consumer entity with the monitoring capabilities of a plurality of monitoring entities to determine whether any monitoring entities have monitoring capabilities matching the monitoring requirements of the consumer entity; and

15 initiating a negotiation between the consumer entity and a plurality of monitoring entities to select a best match between the monitoring requirements of the consumer entity and the monitoring capabilities of the plurality of monitoring entities.

16. A method for monitoring resources of a data processing system, comprising the steps of:

20 identifying the monitoring requirements of a currently active set of consumer entities;

determining whether a currently active set of monitoring functions of monitoring entities are consistent with the monitoring requirements of the currently active set of consumer entities; and

in response to determining that the currently active set of monitoring functions  
5 are inconsistent with the monitoring requirements of the currently active set of consumer entities, modifying the currently active set of monitoring functions.

17. The method of claim 16, wherein said determining step comprises comparing a set of monitoring descriptions of monitoring entities and consumer entities, which  
10 monitoring descriptions are stored in a repository, and wherein said step of determining is performed in response to change of a monitoring description in said repository.

18. The method of claim 16, wherein modifying the currently active set of monitoring functions comprises configuring a monitoring entity to commence monitoring  
15 a resource.

19. The method of claim 16, wherein modifying the currently active set of monitoring functions comprises configuring a monitoring entity to commence monitoring  
20 a metric.

20. The method of claim 16, wherein modifying the currently active set of monitoring functions comprises configuring a monitoring entity to change the granularity of monitoring for a monitored metric.

21. The method of claim 16, wherein modifying the currently active set of monitoring functions comprises configuring a monitoring entity to change the monitoring  
25 period for a monitored metric.

22. The method of claim 16, wherein modifying the currently active set of  
30 monitoring functions comprises terminating a monitoring entity.

23. The method of claim 16, wherein modifying the currently active set of monitoring functions comprises terminating monitoring of a metric for a monitored resource.

5 24. The method of claim 16, wherein modifying the currently active set of monitoring functions comprises terminating monitoring for a resource.

25. The method of claim 16, wherein modifying the currently active set of monitoring functions comprises terminating reporting of monitoring data to a consumer  
10 entity.

26. A data processing system for monitoring resources of a data processing network, comprising:

15 a data storage unit for storing monitoring capabilities of each of a set of monitoring entities;

a monitoring manager, responsive to monitoring requirements of a data consumer entity, for comparing the monitoring requirements of the data consumer entity with monitoring capabilities of monitoring entities stored in the data storage unit to identify at least one monitoring entity having monitoring capabilities matching the  
20 monitoring requirements of the data consumer entity, selecting at least one of the identified monitoring entities, and binding the selected monitoring entities to the data consumer entity.

27. The data processing system of claim 26, wherein the monitoring manager  
25 comprises:

a component for handling registration and de-registration of consumer entities and monitoring entities with a monitoring subsystem;

a selector for selecting at least one monitoring entity for a consumer entity; and

30 a connection manager for establishing a connection between the consumer entity and the selected monitoring entity.

28. The data processing system of claim 26, wherein the monitoring manager comprises a resource optimizer for determining a set of one or more monitoring entities capable of generating required monitoring data from data measured for a resource.

5 29. A distributed data processing system comprising:  
a set of data processing apparatuses each comprising at least one resource;  
a set of data processing apparatuses each comprising at least one consumer entity  
requiring monitoring data for a resource;  
at least one data storage unit storing a repository of monitoring requirements of  
10 the consumer entities and storing monitoring capabilities of each of a set of monitoring  
entities; and  
a monitoring manager, responsive to the monitoring requirements of a first data  
consumer entity, for comparing the monitoring requirements of the first data consumer  
entity with the stored monitoring capabilities of monitoring entities to identify at least one  
15 monitoring entity having monitoring capabilities matching the monitoring requirements of  
the first data consumer entity, for selecting at least one of the identified monitoring  
entities, and for binding the selected monitoring entities to the first data consumer entity.

30. The distributed data processing system of claim 29, wherein the monitoring  
20 manager comprises a set of computer program components distributed across a plurality  
of data processing apparatuses.

31. A data processing system for monitoring resources of a data processing network,  
comprising:  
25 a data storage unit for storing monitoring capabilities of each of a set of  
monitoring entities;  
a monitoring manager configured to respond to monitoring requirements of a  
data consumer entity by determining whether a currently active set of monitoring  
functions of monitoring entities are consistent with the monitoring requirements of the  
30 currently active set of consumer entities, and configured to respond to a determination  
that the currently active set of monitoring functions are inconsistent with the monitoring

requirements of the currently active set of consumer entities by modifying the currently active set of monitoring functions.

32. A computer program product, comprising program code recorded on a recording  
5 medium, for managing monitoring of resources within a data processing network on  
behalf of one or more data consumer entities within the network, the program code  
comprising:

a monitoring manager, responsive to monitoring requirements of a data  
consumer entity, for comparing the monitoring requirements of the data consumer entity  
10 with stored monitoring capabilities of monitoring entities to identify at least one  
monitoring entity having monitoring capabilities matching the monitoring requirements of  
the data consumer entity, for selecting at least one of the identified monitoring entities,  
and for binding the selected monitoring entities to the data consumer entity.

15 33. A computer program product, comprising program code recorded on a recording  
medium, for managing monitoring of resources within a data processing network on  
behalf of one or more data consumer entities within the network, the program code  
comprising:

a monitoring manager configured to respond to monitoring requirements of a  
20 data consumer entity by determining whether a currently active set of monitoring  
functions of monitoring entities are consistent with the monitoring requirements of the  
currently active set of consumer entities, and configured to respond to a determination  
that the currently active set of monitoring functions are inconsistent with the monitoring  
requirements of the currently active set of consumer entities by modifying the currently  
25 active set of monitoring functions.